

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

17ME46B/17MEB406

Fourth Semester B.E. Degree Examination, June/July 2019 Mechanical Measurements and Metrology

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What is Metrology? What are the objectives of metrology? (07 Marks)
b. Explain Subdivision of Standards. (08 Marks)
c. Define Wavelength Standard. What are the advantages of wavelength standard? (05 Marks)

OR

- 2 a. Explain the Wringing Phenomena of Slip gauges. (05 Marks)
b. With a neat sketch, explain the working of Sine bar and mention its limitations. (08 Marks)
c. With a neat sketch, explain the working of Auto collimator. (07 Marks)

Module-2

- 3 a. Explain the principle of Interchangeability and Selective assembly. (08 Marks)
b. With neat sketches, explain different types fit. (07 Marks)
c. State and explain Taylor's principle of gauge design. (05 Marks)

OR

- 4 a. Define Comparator. What is the need of a comparator? (05 Marks)
b. With a neat sketch, explain Dial Indicator. What are the advantages? (07 Marks)
c. Sketch and explain the working of LVDT. (08 Marks)

Module-3

- 5 a. With a neat sketch, explain screw thread terminology. (06 Marks)
b. Derive an expression for Best wire size for screw thread measurement. (07 Marks)
c. With a neat sketch, explain the working of Tools maker's microscope. (07 Marks)

OR

- 6 a. With a neat sketch, explain Gear teeth terminology. (06 Marks)
b. With neat sketch, explain the working of laser interferometer. (07 Marks)
c. With a neat sketch, explain the working of co-ordinate measuring machine. (07 Marks)

Module-4

- 7 a. Explain Generalized measurement system, with block diagram. (07 Marks)
b. Define : i) Accuracy ii) Threshold iii) Calibration iv) Hysteresis v) Error. (05 Marks)
c. What is Transducer? Sketch and explain the principle of Electronic Transducer. What are the advantages of Electronic transducers? (08 Marks)

OR

- 8 a. With a circuit diagram, explain Ballast circuit. (08 Marks)
b. With a block diagram, explain Telemetry system. (06 Marks)
c. With a neat sketch, explain stylus type Oscillography. (06 Marks)



Module-5

- 9 a. With a neat sketch, explain working of Prony brake dynamometer. What are its limitations? (10 Marks)
b. With a neat sketch, explain McLeod gauge. (10 Marks)

OR

- 10 a. Define Strain gauge. With a neat sketch, explain wheat stone bridge circuit. (10 Marks)
b. Define Thermocouple. State the law's of thermocouple and explain. (06 Marks)
c. Write a note on :
i) Thermo couple materials ii) Advantages and disadvantages of thermocouples. (04 Marks)

* * * * *